H700 Series Router

User Manual

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Chapter 1

1 Prologue

This document is just suit for the following products; it helps you quickly to used cellular Router function and resolves some common questions.

1.1 Version

Version	Date	Description	Author
2.00	2010-5-6	Modified	Jason

1.2 Referenced Documents

1.3 Notice

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Chapter2

2 Introduction

2.1 Brief

3G Series Router is easy to install, reducing the Reliance on the end customer and enables direct access to your remote LAN devices for control and monitoring purposes, it enables companies to remotely access equipment at mobile, remote networks and isolated sites.

3G Series Router is a dedicated ideal data transmission channel for industrial applications. It can be operated at GPRS or CDMA 1x or EDGE or HSDPA or HSUPA or EVDO network by selecting a different radio module

2.2 Features

- Support multiple protocol conversion
- Transparent data transmission
- Ethernet and RS-232 interface
- Easy To Use and Flexible Intelligent Router
- Real-time clock
- WEB/Telnet/console management interface
- Remote web management
- Support radio network data envelope counting
- Always-On-Line
- Self-diagnostic and alarm output
- Local/remote profiles backup and retrieve
- Local/remote firmware upgrade
- Urgent event alarm via SMS
- Built-in DHCP server
- Support DMZ host
- Firewall and NAT
- Support packet filtering
- Support data center communication (DTU feature)
- Support APN or VPDN
- WiFi optional, VPN + IPSec optional

2.3 Specification

Please follow the related specification datasheet

2.4 Application

■ Access Private Networks

With The 3G Cellular Router, government employees or corporate users can create a wireless network and provide colleagues with remote access to their secure private networks. It is ideal for off-site situations, such as crime scenes, where sharing information is critical.

■ Special Events

Share the Internet while working at special events. Whether you are at an industry convention, off-site meeting, sporting event, or backstage at a concert, The 3G Cellular Router can keep your personnel and guests in touch with the world.

■ Internet Access for Commuters

By installing the 3G Cellular Router on a bus, train, or even a boat, you can allow passengers to check e-mail or chat online while commuting. Enhance their experience and increase the value of your services offered with the 3G Mobile Router.

■ Emergency Response

Whether you are providing relief for a natural disaster or coordinating the rescue of a lost hiker, you can quickly set up a wireless network and allow your team members to access e-mail, go online, and share important files.

■ For the Road

The 3G Cellular Router lets you share a mobile Internet connection with your group when you are on-the-go for work or play. Stay on top of e-mails, chat with friends and family, get directions, read news, download music, or shop online.

■ Fixed Broadband Solution

The 3G Cellular Router can be used as a fixed broadband Internet solution in homes or offices that do not have a cable or DSL service available, but are within a compatible mobile wireless network. Conversely, if you are already subscribing to a mobile Internet service, you can simply use the 3G Mobile Router in your home instead of paying extra for a wired high-speed Internet connection.

■ **Void Surveillance**

Industrial Application

- 1. Water, gas and oil flow metering
- 2. Data Monitor and Control
- 3. CCTV, DVR monitor application
- 4. AMR (automatic meter reading)
- 5. Power station monitoring and control
- 6. Remote POS (point of sale) terminals
- 7. ATM machines
- 8. Traffic signals monitor and control
- 9. Fleet management
- 10. Power distribution network supervision
- 11. Central heating system supervision
- 12. Weather station data transmission
- 13. Hydrologic data acquisition
- 14. Vending machine
- 15. Traffic info guidance
- 16. Parking meter and Taxi Monitor
- 17. Telecom equipment supervision (Mobile base station, microwave or optical relay station)

Chapter3

3 Getting Started

3.1 Panel introduction

Power supply interface: **DC5V-25V power supply (5V or 12V suggested), Please the fixed necessary power supply of connection product is ensured voltage and the current parameter of power supply if customer exchanges with other power supply. Special attention: If customer has changed the power supply, sometimes can because of twinkling the current ability and leads to Router product reboot inadequately**

Ethernet interface: **Can recognize voluntarily crosses or the straight networking winding thread, and consult 100M voluntarily and 10M's network speed merit ability**

Antenna interface: **standard SMA antenna interface**

3.2 The LED State

In order to know state of module there are four LED lamps, Online, Run, LAN and Cell altogether, and among them, the concrete explanation is as follows to the different states of pilot lamp representative:

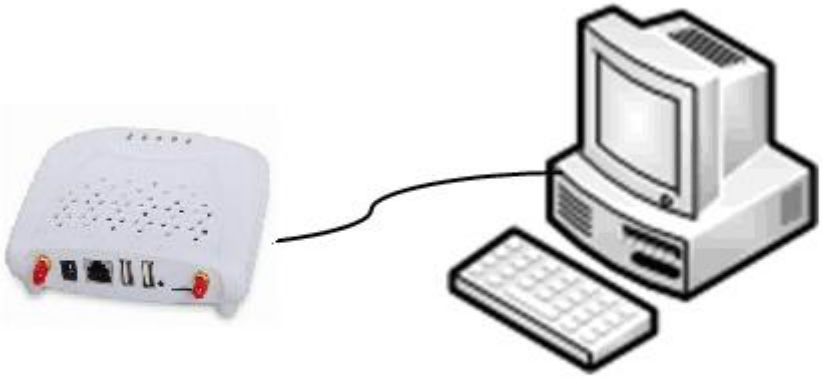
	Online	Blink	Winked
Online	Connected data transmission after got the IP when it light on		Failed to connect or data transmit when light off.
Run	show the state of initialization system with others when the equipment is started	Run normally and Data transmitting when it's lighting...	
LAN	Ethernet links normal when it light on	Data transmitting by Ethernet interface when lighting	None Ethernet connects
Cell		Module wok normally	

The system work LED state explanation

	Online	Run	LAN	Cell
Power supply	Online1~2s	Online1~2s		
System checking	First blink 2 times	And then blink 2 times		
System checking again	First blink 2 times	And then blink 2 times		
Checking cellular module	The lights winked.	The lights winked.		
Start program	blink 8s	Off		
Work normally	online	Blink		blink

3.3 Connect to products

1. Please connect antenna and RJ45 cable with our products,



3.4 Insert SIM Card

Insert SIM card to the SIM Card Slot of the router

Import Notes: When the router is power on, never insert or take out the sim card, which will cause router damaged.

3.5 Login Web

3G Cellular Router contains WEB SERVER, CONSOLE, TELNET and other configuration mode. It is suitable for different users for configuration operation in local or remote. And the web server is easiest to be used, so we advice your to used this configuration mode.

3.6 Connection configuration

Step 1: Ensure that the computer is on the same network address range as the Router and make it as your computer's default gateway and DNS server.

Consult your operating software user manual to determine how to change the IP address on the Ethernet port of the computer and the default gateway address. In the example below the IP address of the PC has been set to 192.168.0.2—192.168.0.253 and the default gateway is the default address of the cellular Router (192.168.0.254) and Primary DNS as 192.168.0.254

For Windows XP the sequence is:

START >>Control Panel >> Network Connections >>Right-Click on Local Area Connection >> Properties >> Internet Protocol

Change the computer's IP address, default gateway and DNS server and then click OK.

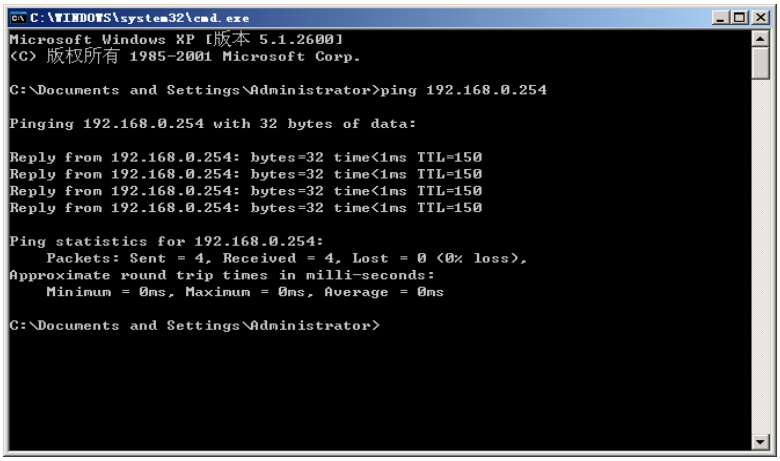
It may take a minute or two for the computer to be allocated the new IP address. In some cases, a reboot may be required

Step 2: To test that there is connectivity between the computer and the Axon, you can ping the Axon using the ping command at the command prompt. To get to the command prompt in Windows XP, use:

START>>RUN>>cmd

The ping command is entered as follows:

If successful you should see some ping statistics like the following example:



1) If having appeared with command: "Request timed out." That indicate PC and 3G cellular Router are not in the same net section. Please run “IPCONFIG/ALL” under the command model.

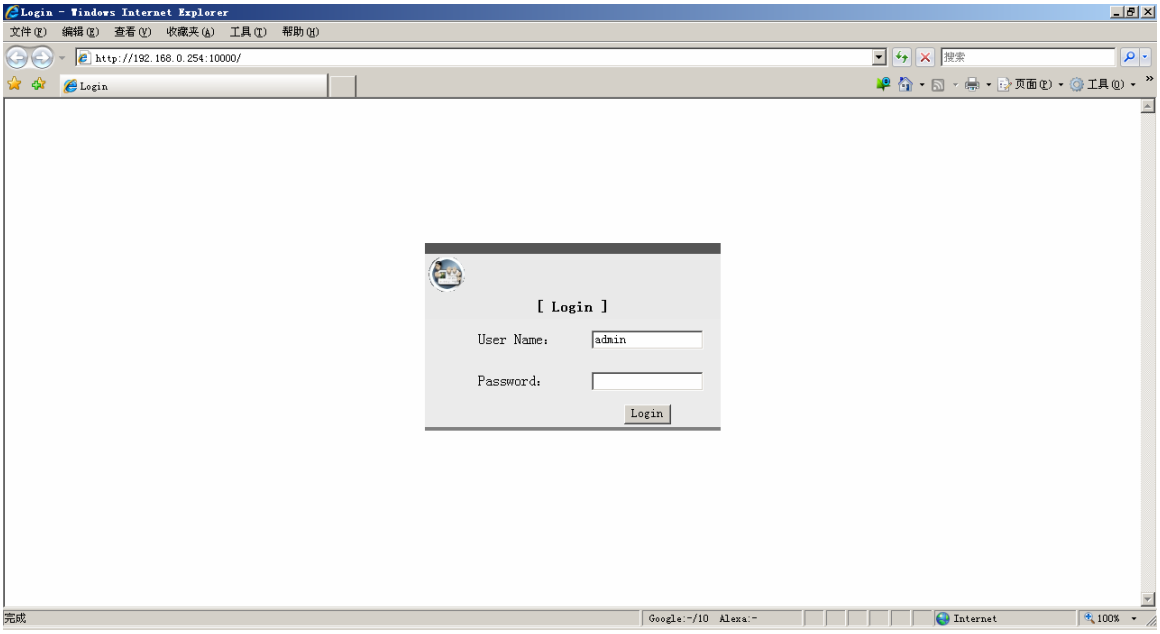
Please check the two IP are in the same set. If they are, but still ping successfully, it is possibly wrong in PC ARP. Recommend run “ARP –D” first. Attention: If appears former error in setting more than one 3G cellular Router, because the same default IP but different MAR, then it must run “PING” after “ARP –D”.

2) It indicates that no real connect between PC and 3G cellular Router when come out “Destination host unreachable”. Please check or change the cable after setting the 10M Half model of the Ethernet card.

3) If still PING blocks up, please whether or not can lead to by PING between your PC and other PC, and checks up if PC has the software such as fire wall at the same time. If still PING blocks up, please whether or not can lead to by PING between your PC and other PC, and checks up if PC has the software such as fire wall at the same time.

3.7 Login WEB configuration

Open IE on your PC, type the follow URL address



The 3G cellular Router is configured using a web browser as the interface. To log-on to the web server, enter the IP address of the 3G cellular Router in the browser address window. The default address is **192.168.0.254:10000**. A log-on screen should display.

For 3G series cellular Router,
Username: admin Password: 888888

3.8 WEB configuration

If Login successful, the browser should display the following web page,

Chapter4

4 Command configuration

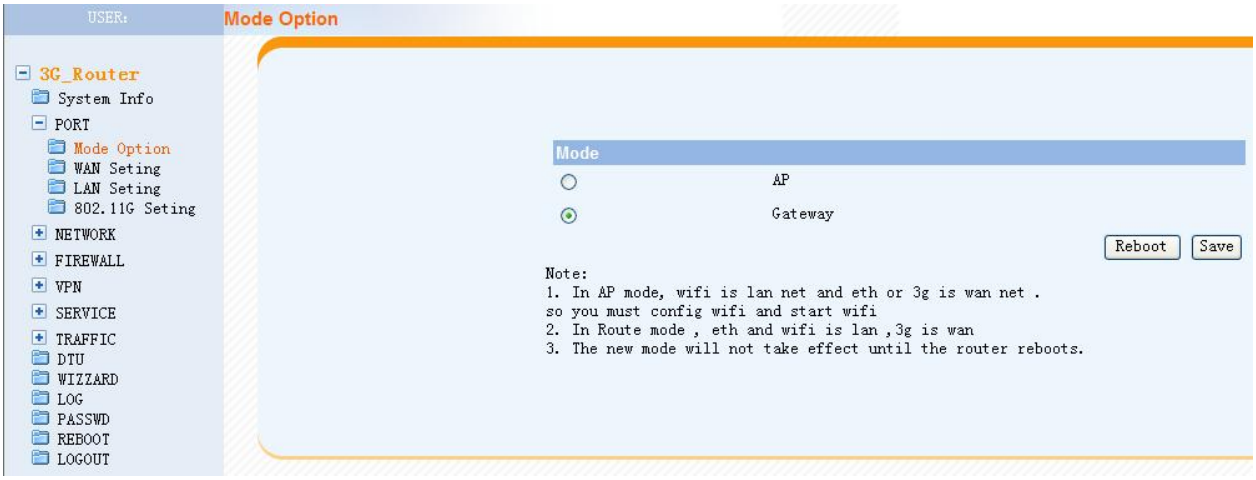
4.1 Router function configuration

If you need to dial-up an internet network, you can configure Router as following steps

4.1.1 Select working mode (For H700 with WiFi only)

It Includes Routing Mode, Transparent Bridge, and Gateway Mode. We advice to used Gateway mode, default is Gateway mode.

(1) Gateway Mode: If you Router network is connected to Internet



4.1.2 WAN configuration

Before this configuration, please get the APN info parameters from your network provider.

APN info --

Username:

Password:

Dial number(service code):

APN code:

A:Take for example of “China Mobile Telecom”, the APN info is as follows.

Username: wap

Password: wap
Dial number (service code): *99*1#**
APN code: CMNET

B: Take for example of “China Unicom”, the configuration is as follows.
Username: card
Password: card
Dial number (service code): #777
APN code: blank (means no APN code)

The following table is china common setting from different ISP

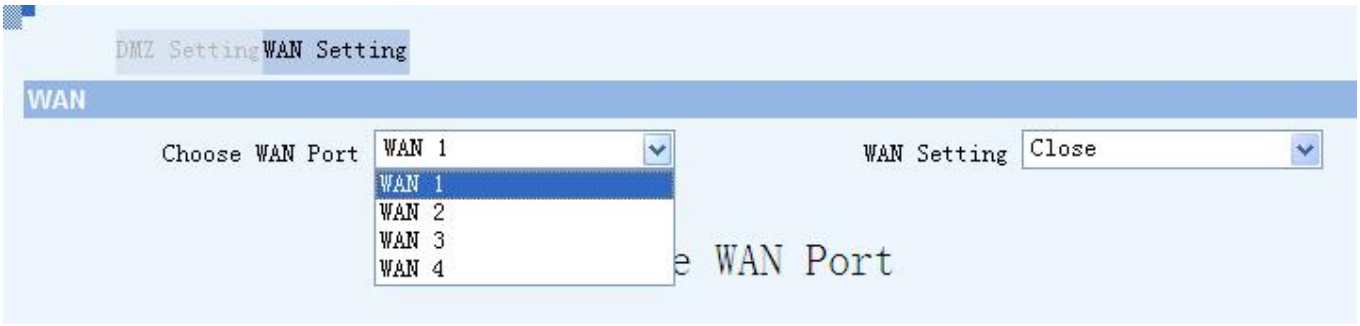
ISP	Dial-up Number	Username	password	AT Strings initialization commands
China mobile	*99***1#	wap	wap	AT+CSQ OK AT+CGDCONT=1,”IP”,”CMNET” OK
China unicom	#777	CARD	CARD	AT+CSQ OK AT\&D2 OK

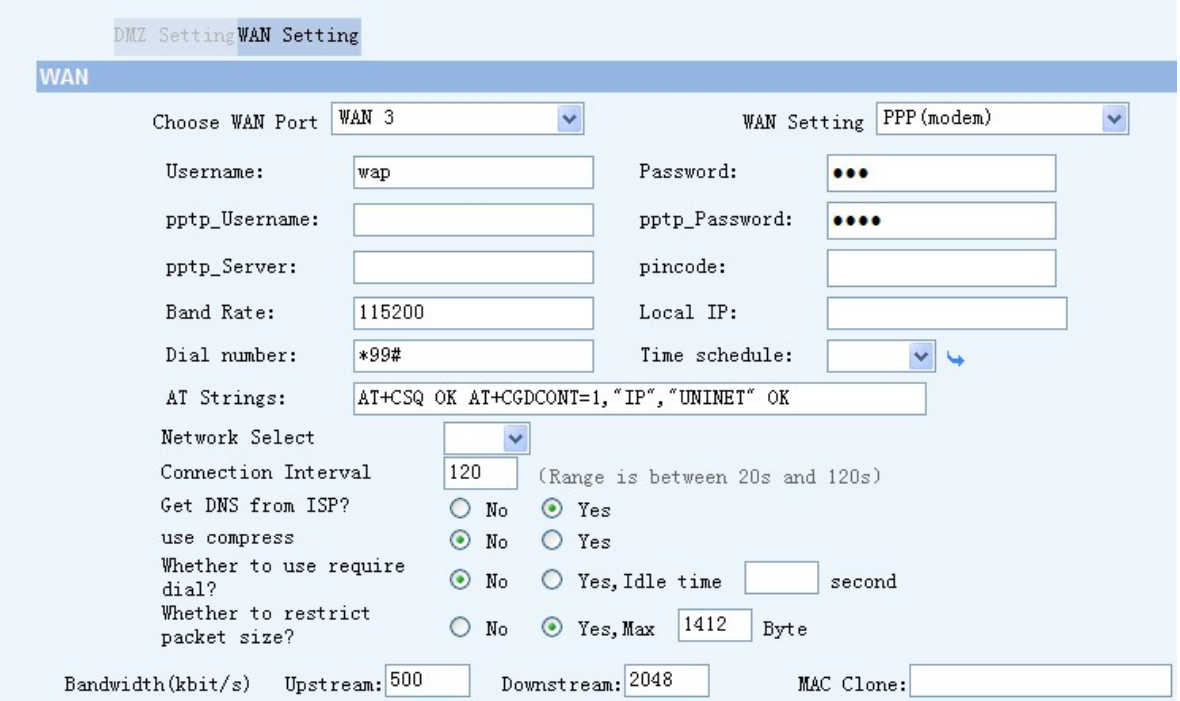
Note: “OK” must capital letters in Extra initialization command
AT Strings for CDMA/EVDO networks: AT+CSQ OK AT\&D2 OK
AT Strings for GSM/GPRS/EDGE/HSDPA/HSUPA: AT+CSQ OK AT+CGDCONT=1,”IP”,”XXXXXX” OK
XXXXXX is the APN code. For the AT Strings, please just change the access code for each sim. Keep the other characters and interpunction and space, comma the EXACT THE SAME AS THE AT STRINGS SAMPLE.

At the router menu,
Click”PORT -- WAN Setting -- WAN Setting”
According to different ISP, WAN configuration include Static IP, ADSL, PPP, DHCP Mode, we usually choose ”PPP modem” for this product.

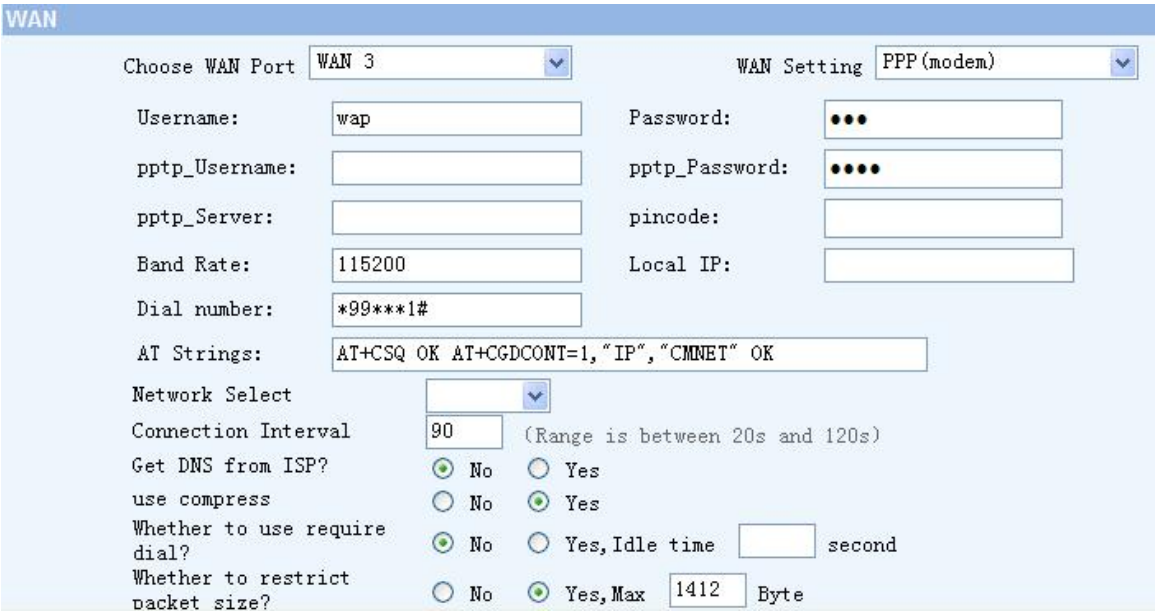
- **Select ppp(modem)**

There are 4 WAN Ports.
A: For HSDPA or HSUPA version, please close WAN 1, WAN2, & WAN4, and click “save button”. Then choose WAN3 and continue the configuration
B: For EVDO version, please close WAN 2, WAN3, & WAN4, and click “save button”. Then choose WAN1 and continue the configuration

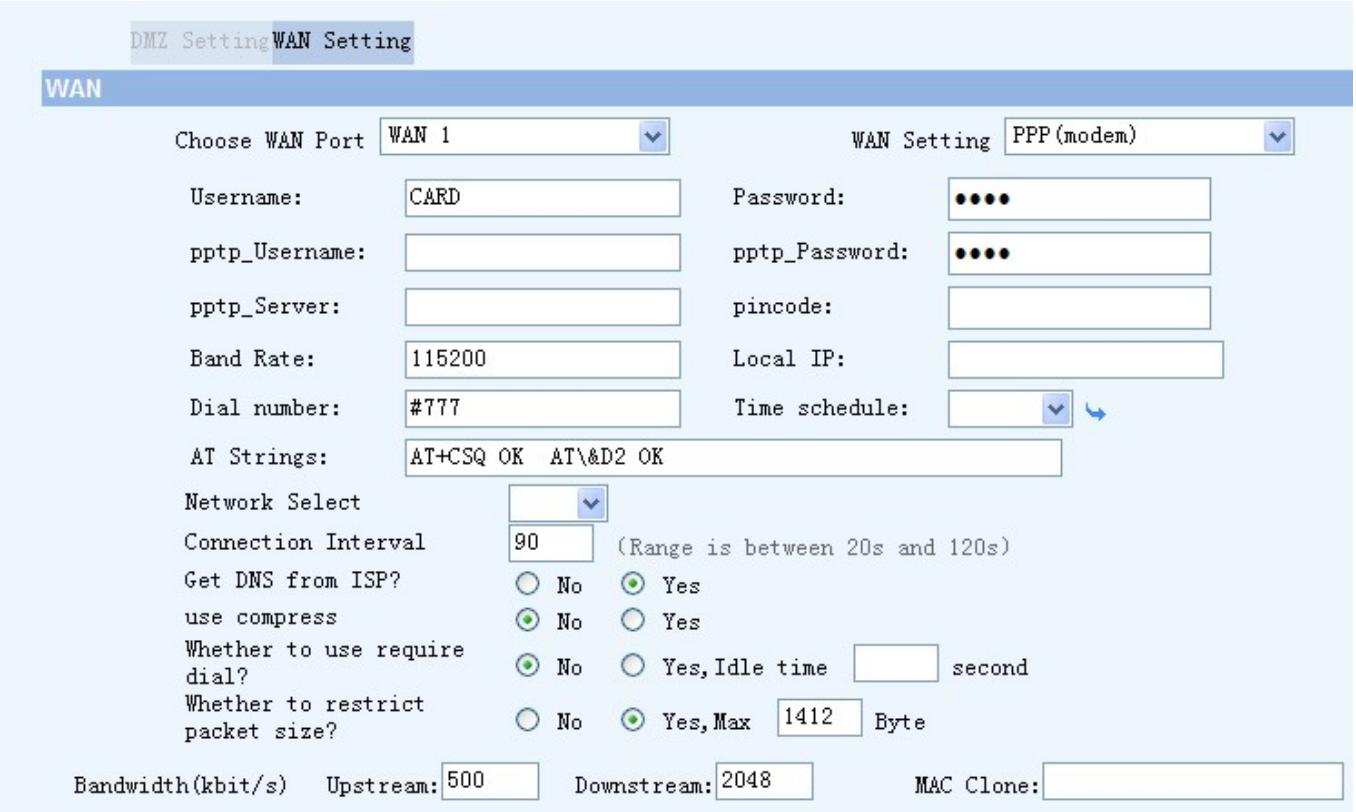




HSDPA/HSUPA Version—WAN 3 (Example for China UNICOM 3G)



HSDPA/HSUPA Version—WAN 3 (Example for China Mobile EDGE/GPRS)



EVDO Version—WAN 1 (Example for China Unicom CDMA EVDO)

For normal use, please just set the following parameters, and keep others as default when we send the router.

a. Username (some network provide has no this value, please keep it as blank)
b. Password (some network provide has no this value, please keep it as blank)
c. Dial number (it's service number or service code, please get this from network provider)
d. AT Strings (Please follow the instruction above to make it)
e. Network select (Keep it as default, or select it as "Auto")
f. Get DNS from ISP (Choose yes)
g. use compress (normally please choose No)

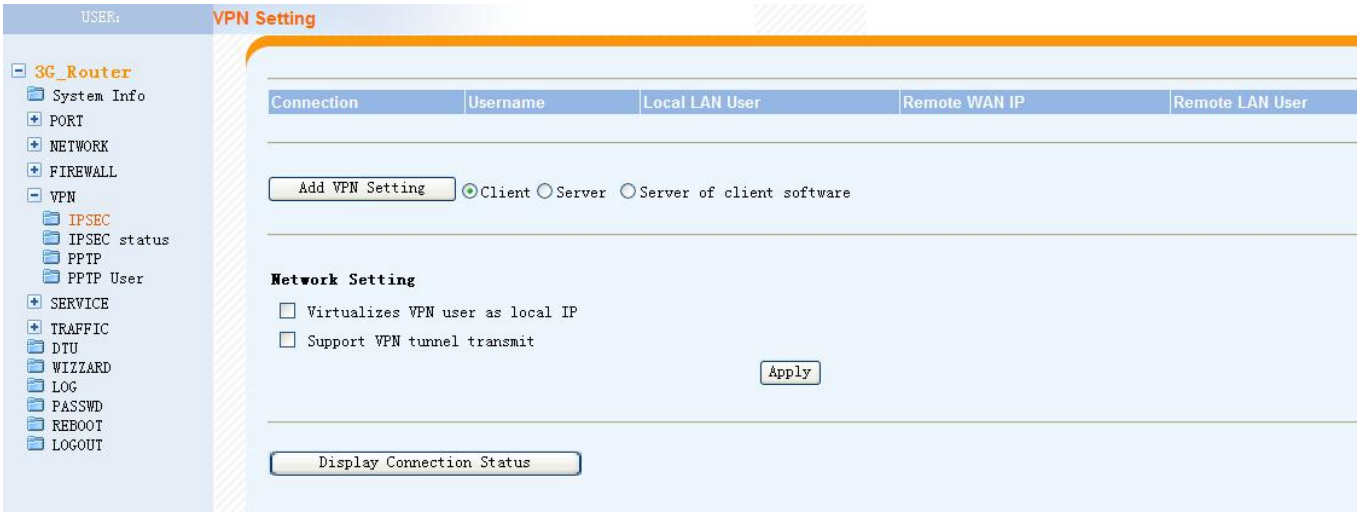
Keep all others as default when we send the router because wrong setting may make the router no work.

After finishing the configuration, click "Save Button", then Click "Reboot Button".

4.2 Config VPN

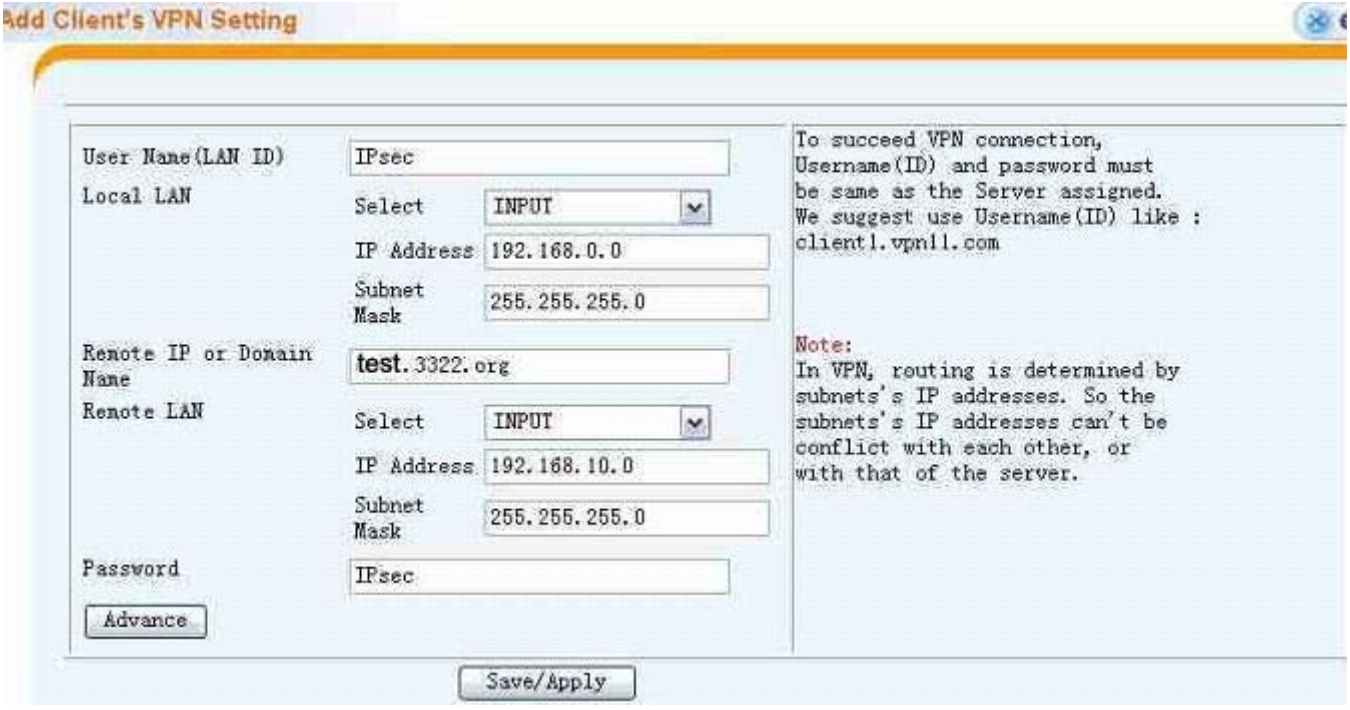
For select this function, you Can configure Router as client and server, how to configure VPN in details?

4.2.1 Configure Router as IPSec client



- **(1) Config 3G Router as client, if connect Router with other equipment**

Select ”Client” option and click ”Add VPN Setting ” button, then display client web as below



User name (local ID): local ID is the name of this connection, which is from the VPN server (host name is default, it must be the same with VPN server configuration)

Local LAN

Select: choose input

IP Address: input local IP address range, for example the client router IP is 192.168.0.254, so here we put 192.168.0.0

Subnet Mask: 255.255.255.0

Remote LAN

Select: choose input

IP Address: input remote IP address range, for example the VPN server router IP is 192.168.10.254, so here we put 192.168.10.0

For the sever IP (remote IP), you can fill in the server IP address or server's DDNS.

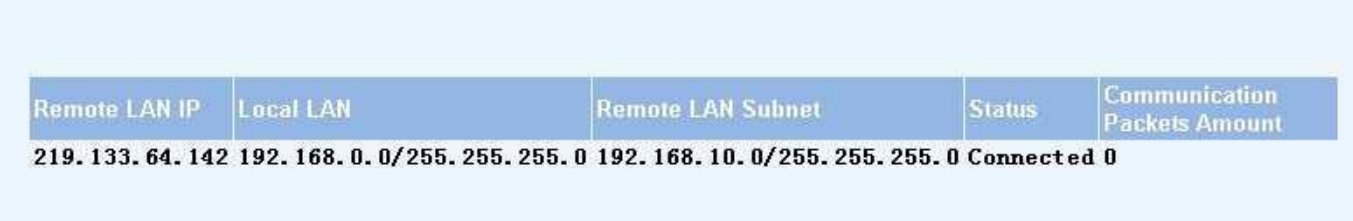
Subnet Mask: 255.255.255.0

password: the same with in the server, this is unique with the user name from the VPN server router.

Dynamic IP: Dynamic IP means opposite maybe Dial-up connection, so no input IP Address.

After configuration, save it and re-power on the router. Then the router will connect the VPN by IPSec.

Then you can find at "VPN—IPSEC status" the similar following pictures, which means the IPSec VPN is connected successfully.

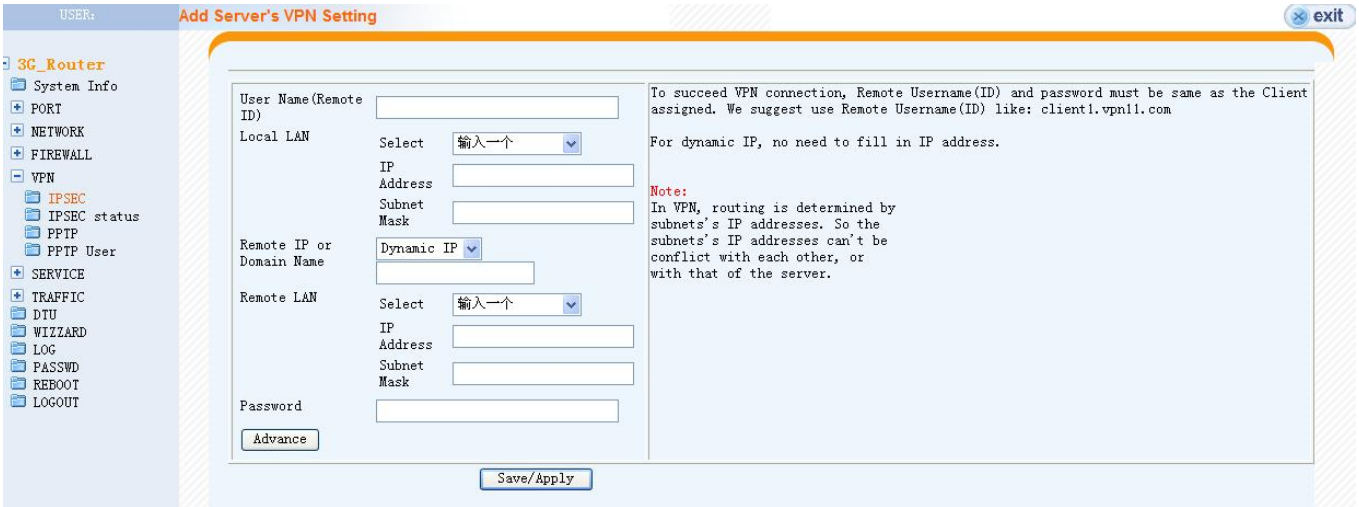


Remote LAN IP	Local LAN	Remote LAN Subnet	Status	Communication Packets Amount
219.133.64.142	192.168.0.0/255.255.255.0	192.168.10.0/255.255.255.0	Connected	0

4.2.2 Configure Router as IPSec Server

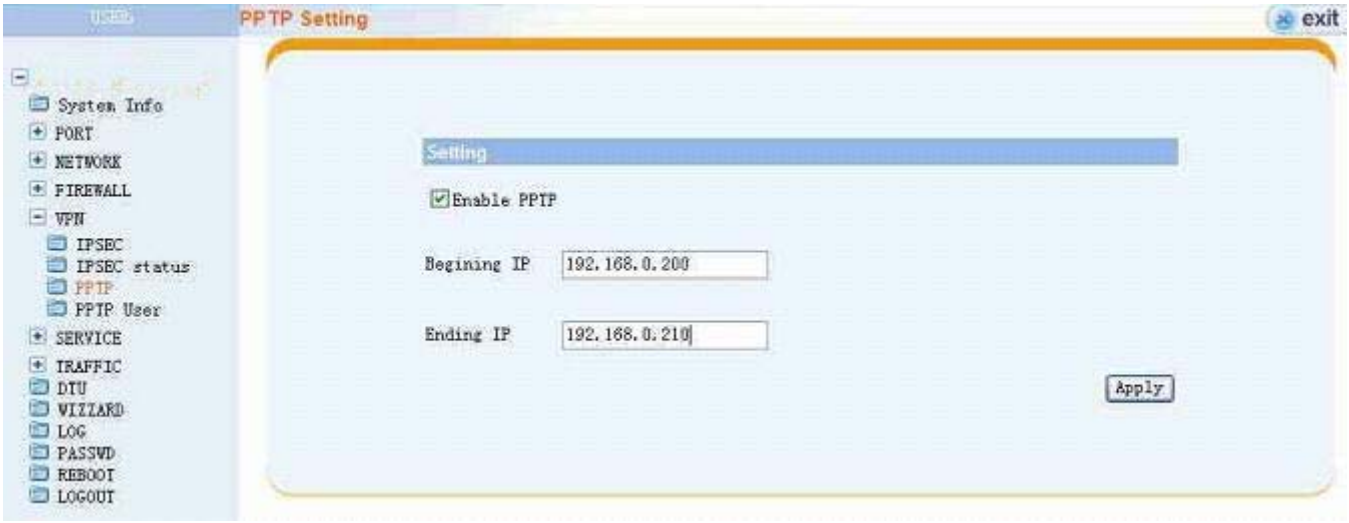
Notes: this is not recommended. We recommend use CISCO VPN Server Router as a VPN server.

Configure 3g Router parameters as below



4.2.3 Configure Router as PPTP Server

4.2.3.1 Follow the picture below, at “VPN -- PPTP”

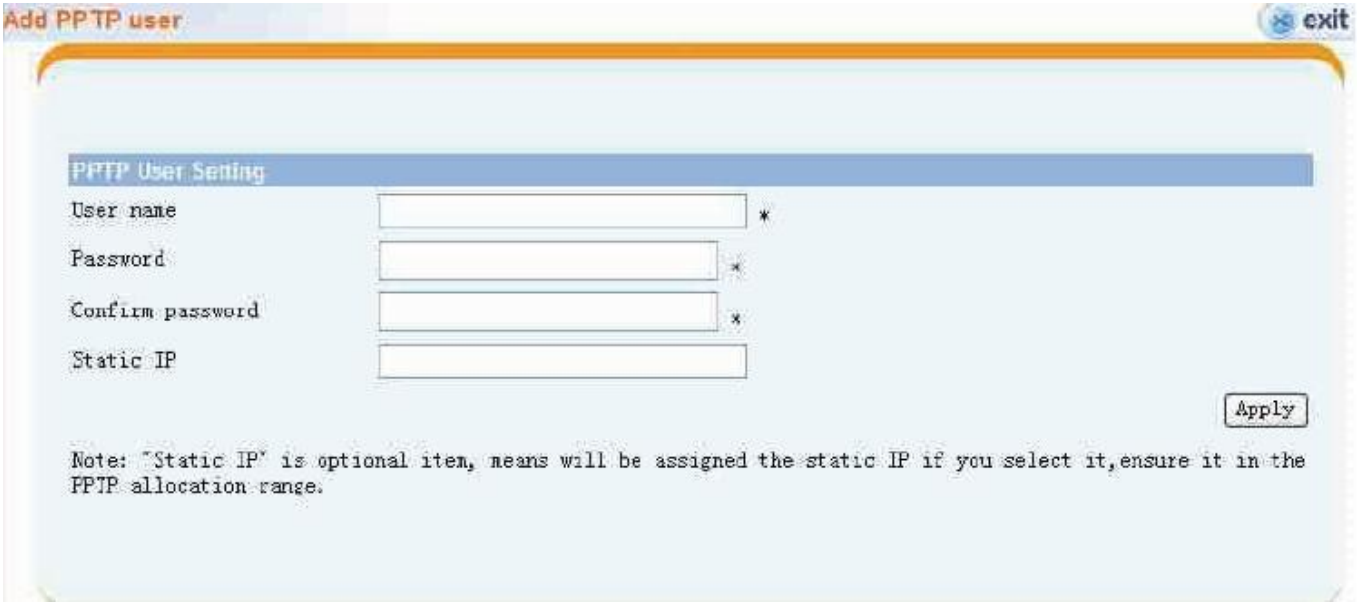


Enable PPTP: choose it
Beginning IP: input it
Ending IP: input it

Click “Apply” button to activate it.

4.2.3.2 Follow the picture below, at “VPN –PPTP User”

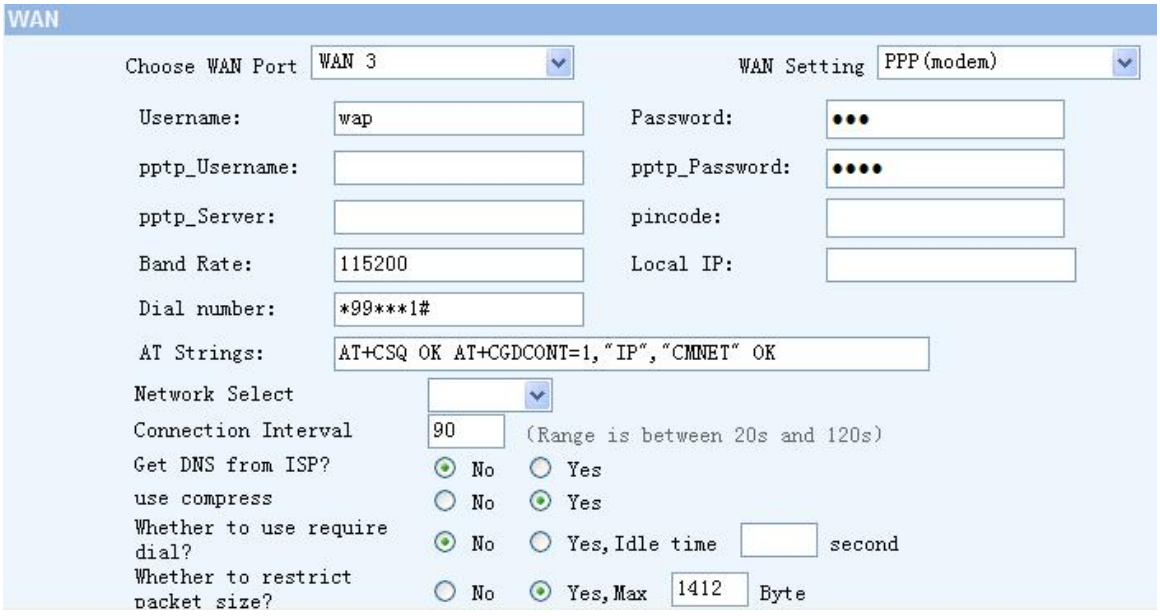
Click “Add” button,



Assign the user name, password, static IP if you want the client get static IP. Then apply.

4.2.4 Configure Router as PPTP client

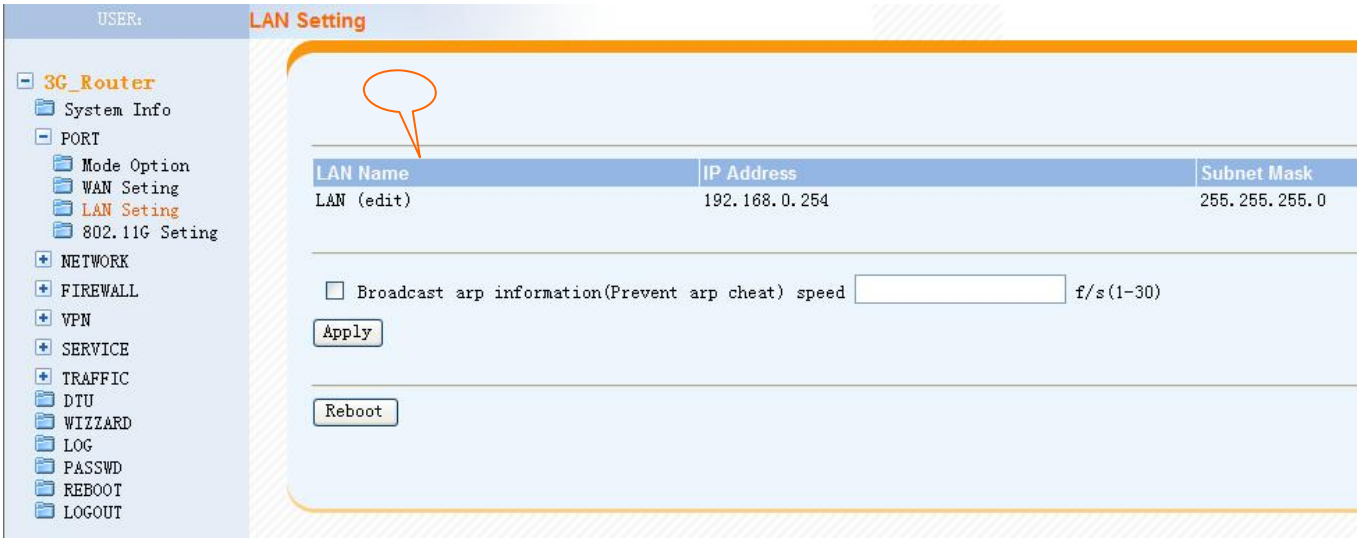
At WAN port setting, fill in the pptp_Username, pptp-Password, pptp_server.
These parameters are from the VPN PPTP server.



For pptp_server, you can fill in the server IP address or server's DDNS.
After finish the configuration, save it and re-power on the router.

4.2.5 Change login address and password

4.2.6 Change login address



LAN (edit): Local Area Network parameter
LAN IP address the default parameter is 192.168.0.254:10000
Subnet Mask: the default parameter is 255.255.255.0
Click ”edit” in LAN (edit) tab, Change local IP address.

If you succeed change the login Address is 192.168.100.254:10000, the other PC must be change local IP address, and its gateway must the same with Router IP

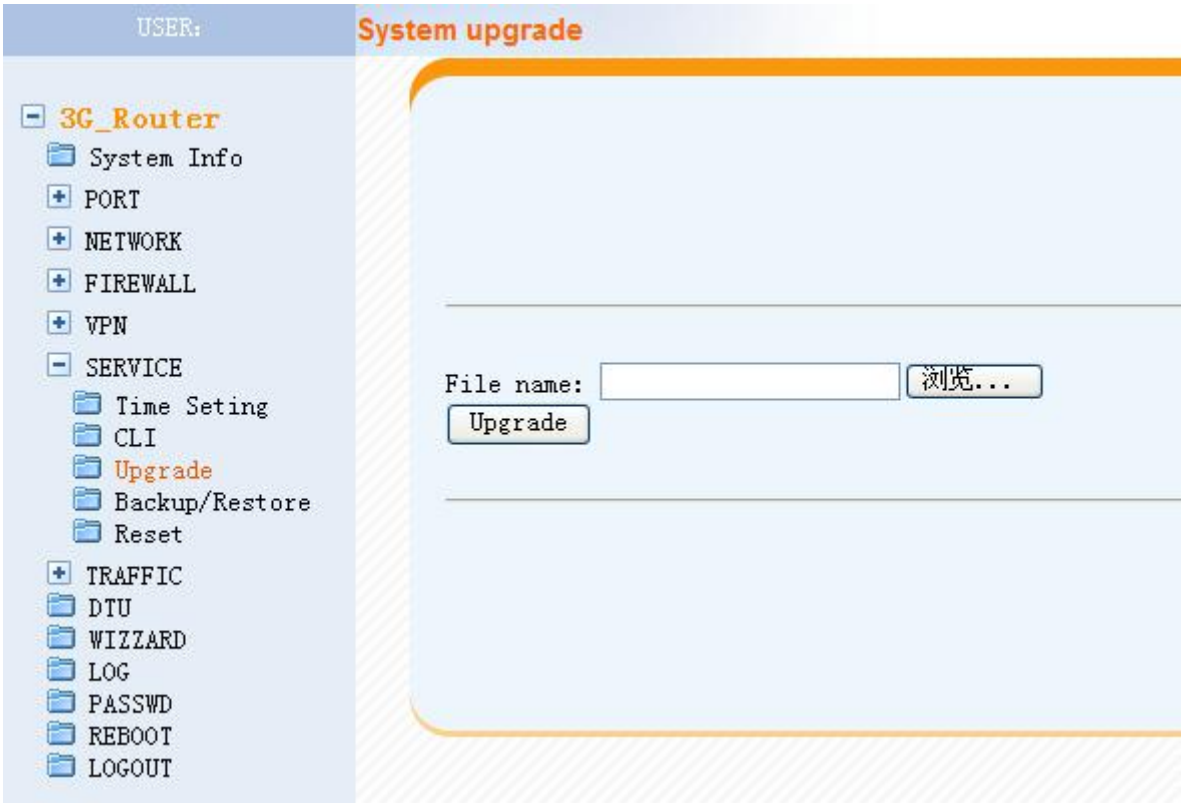
4.2.7 Change login password

Click ”Password” in left menu, and type a new password to change login password

4.3 Production WEB upgrade

Router supplies product upgrade function for users. It have two different upgrade mode, and we suggest used WEB page mode.

Click “services” in left menu, and select “Upgrade” as following



Click “browsing” and select the program file, “update success” appears in the “update promotion status” after 3-5minute, otherwise it will show fail.

After the successful upgrade, the Router will reboot, after then, you had better reset factory default.

Attention: during upgrade, never interrupt operation, otherwise the Router can’t work normally

4.4 Factory default

Router supplies factory default function for user setting. It has two different modes, web reposition mode and reposition jack mode.

4.4.1 WEB mode

Click ”services” in left menu, and select ”Factory default”.

When you choose “reset factory default”, the system will display as below picture, click ”confirm”, the Router setting will be lost and reset to factory default.

Default username: **admin**

Default password: **888888**
Default IP address: **192.168.0.254**
Default Subnet Mask: **255.255.255.0**

4.4.2 R.. jack mode

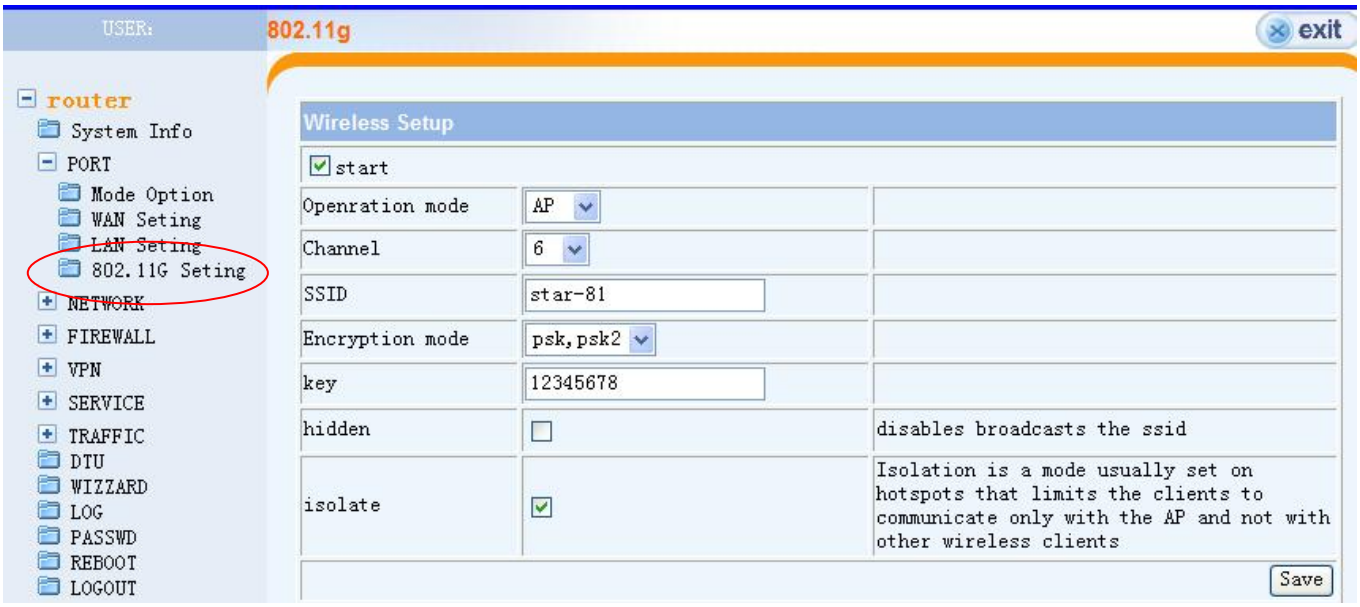
You can according to 2.1 chapter about rear panel, Select a" R jack " between in power and LAN port, used a pen press the jack about 5 sec, it will restore the system parameter to factory default.
For example, when you forget the web manage password of Router, you can do like this.

Chapter 5

5 WiFi Setting (For version with WiFi only)

WiFi Setting

Click “PORT – 802.11G Setting**”**, and set as follows picture showing



Set the parameters as above.

a. Config Operation mode as “AP”;

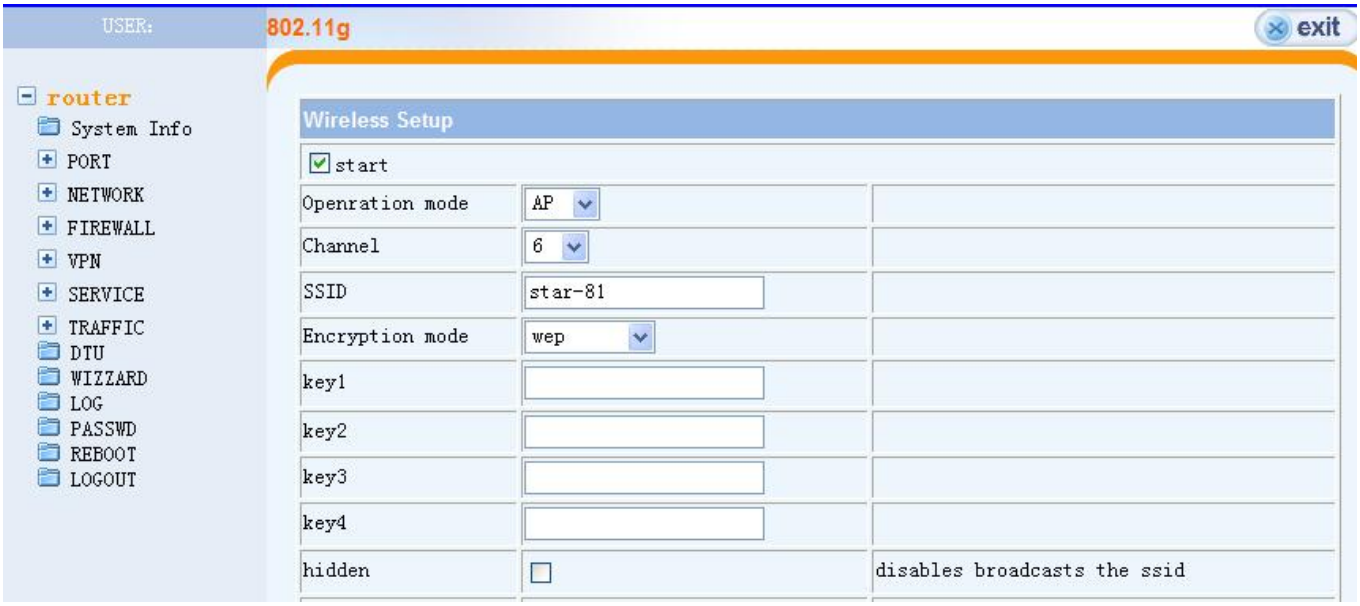
b. Config SSID as you want, for example, “E-Lins Router”

c. You can set the Encryption mode for “psk, psk2” or “wep” or “None”;
and set “key” as the WiFi Access Password;

d. hidden: to hidden the SSID broadcasting. Usually we don’t select this option.

e. isolate: usually we select this option

When activate “Encryption mode”, please input the password in key1, key2, key3, and key4. Normally we input in “key 1”.



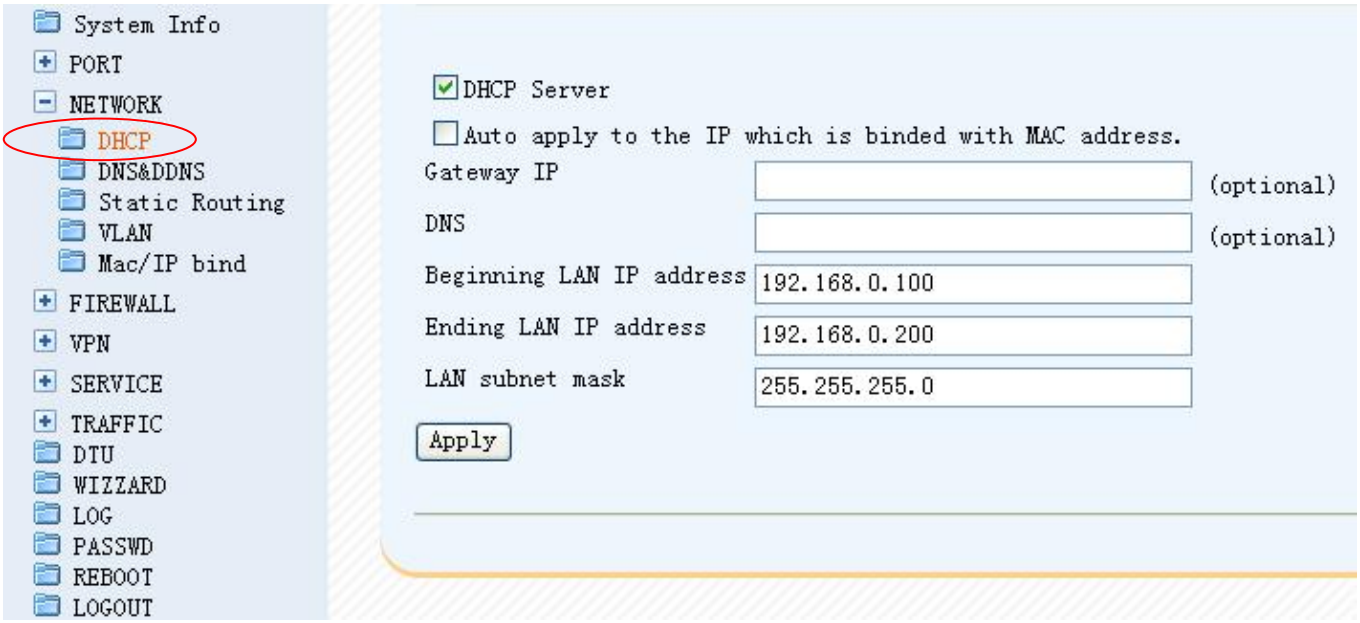
After all setting for WiFi, from our computer, we can find the SSID we configed.

After connection, you can check the wireless status like above. “star-81” is connected.

Chapter6

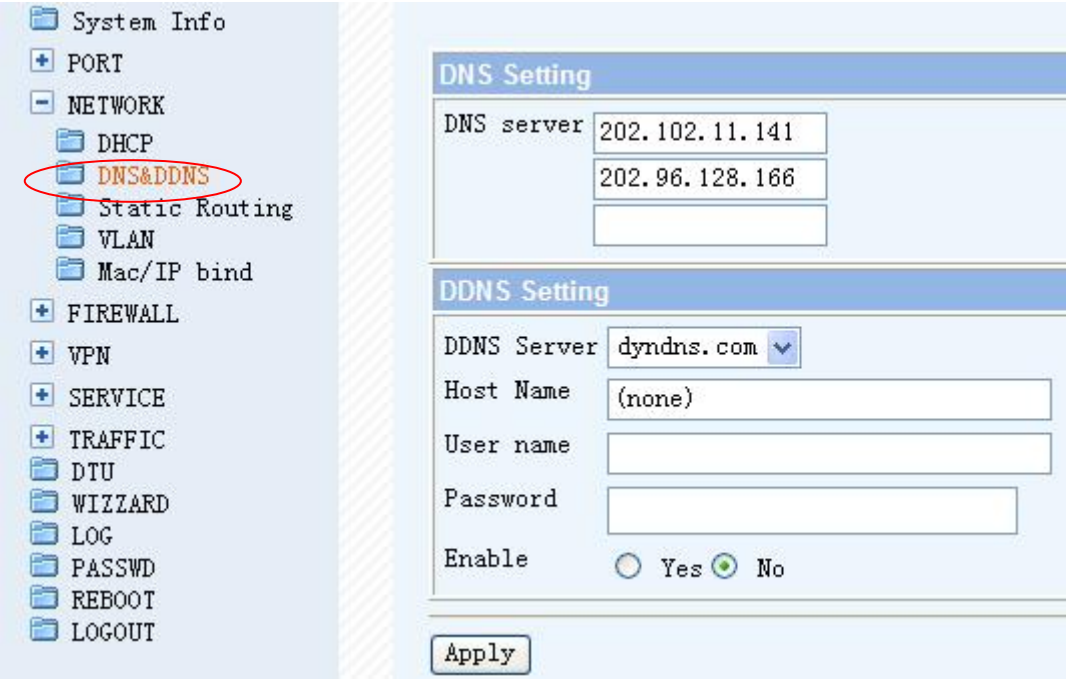
6 NETWORK SETTING

6.1 DHCP



DHCP Server: select it

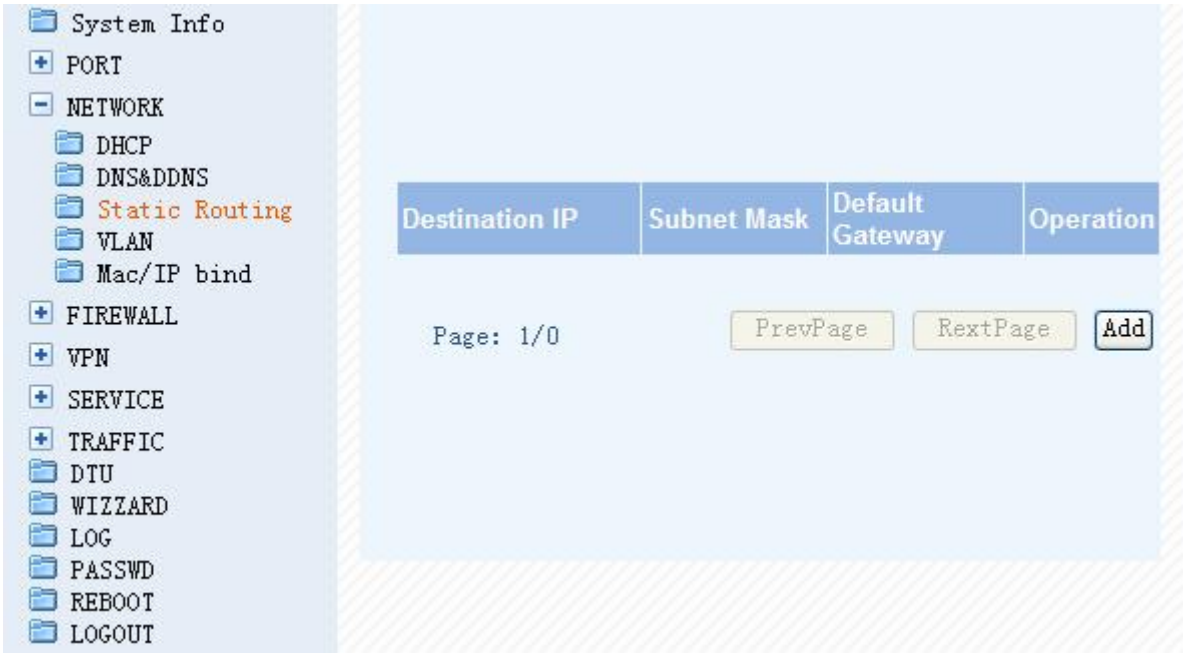
6.2 DNS & DDNS



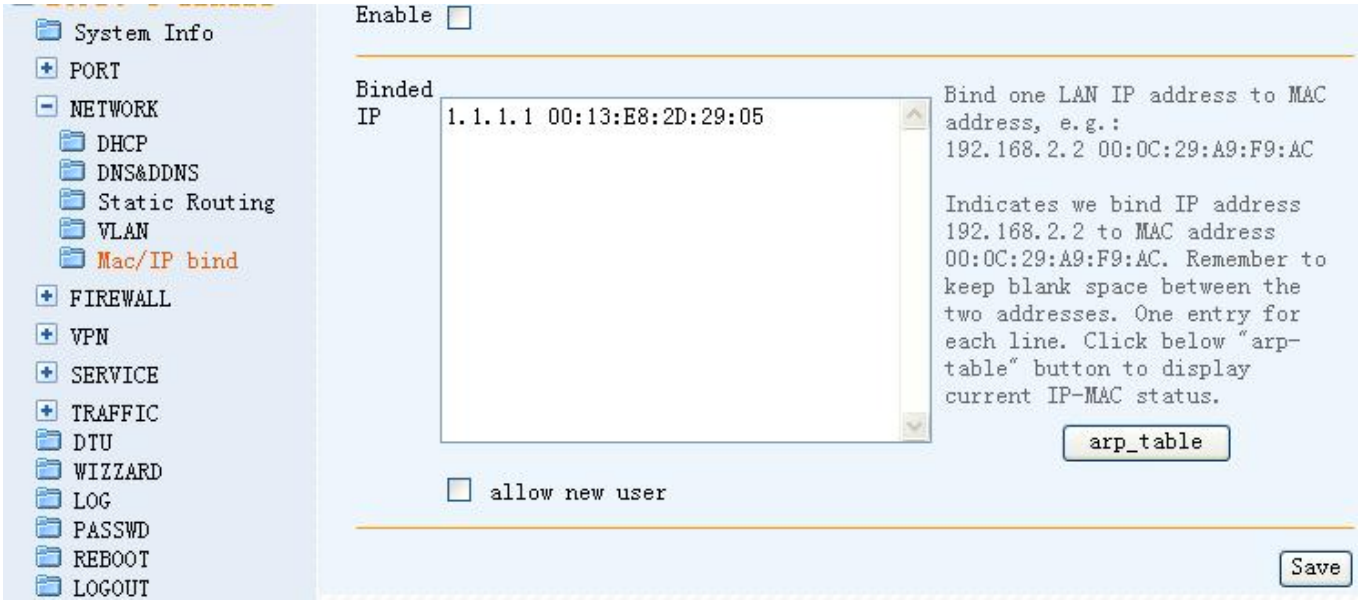
DNS Server: input the DNS Server

DDNS Setting:
DDNS Server: choose the correct sever
Host Name: input the host name
User name: input the user name
Password: input the password
Enable: If you use DDNS feature, please click “Yes”

6.3 Static Routing



6.4 Mac / IP binding



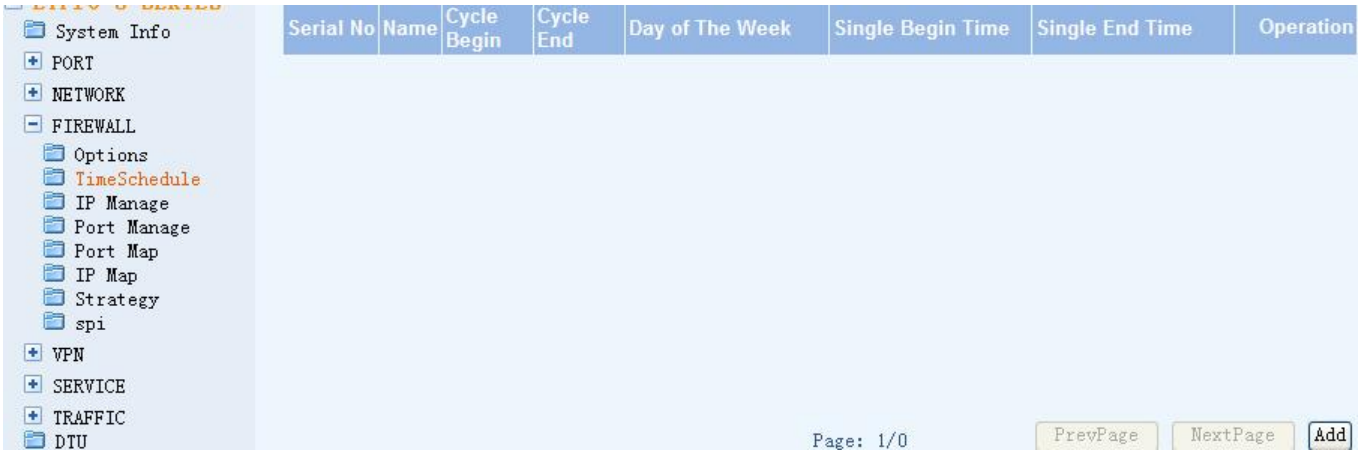
Enable: click to activate

Chapter 7

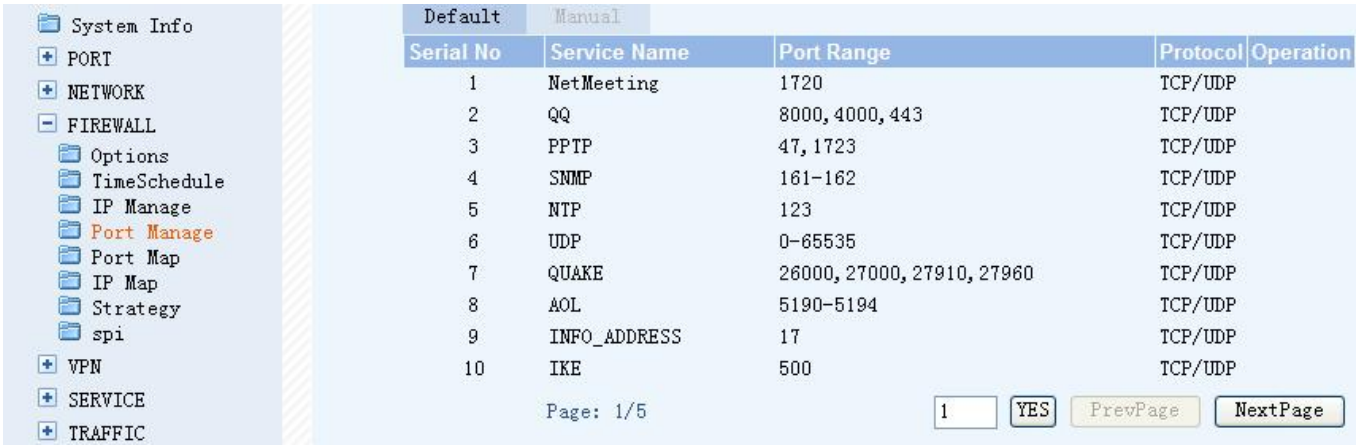
7 Firewall Setting

7.1 Options

7.2 TimeSchedule

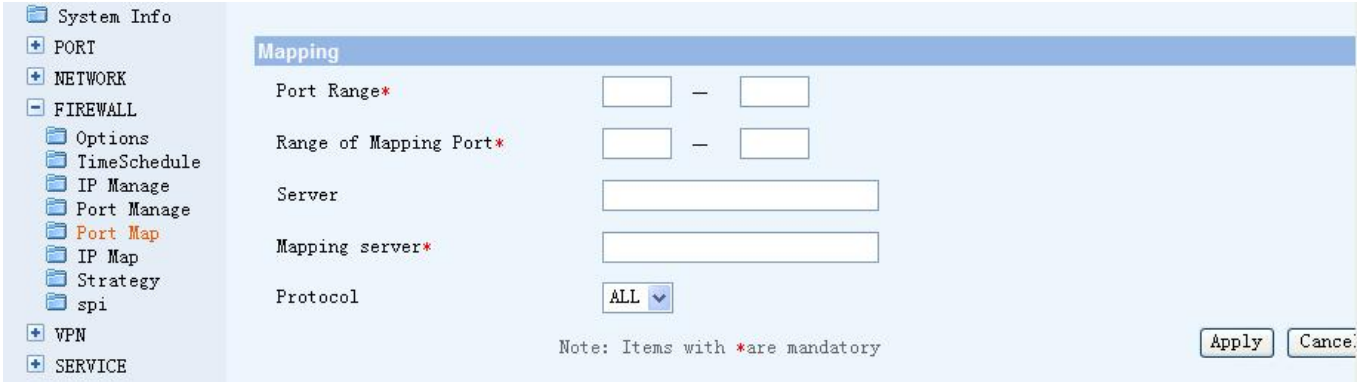


7.3 Port Manage



7.4 Port Map

Click “Add button” to add new.

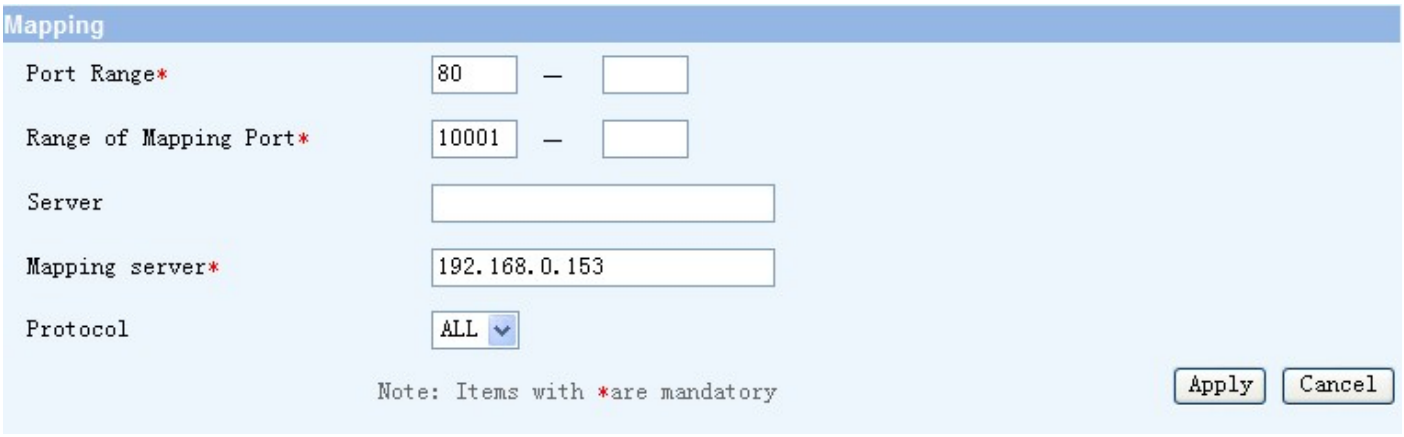


Fill the parameters (Very Important).

Port Range: external port range (keep the 2nd as blank if just single port) e.g. 10001-10005

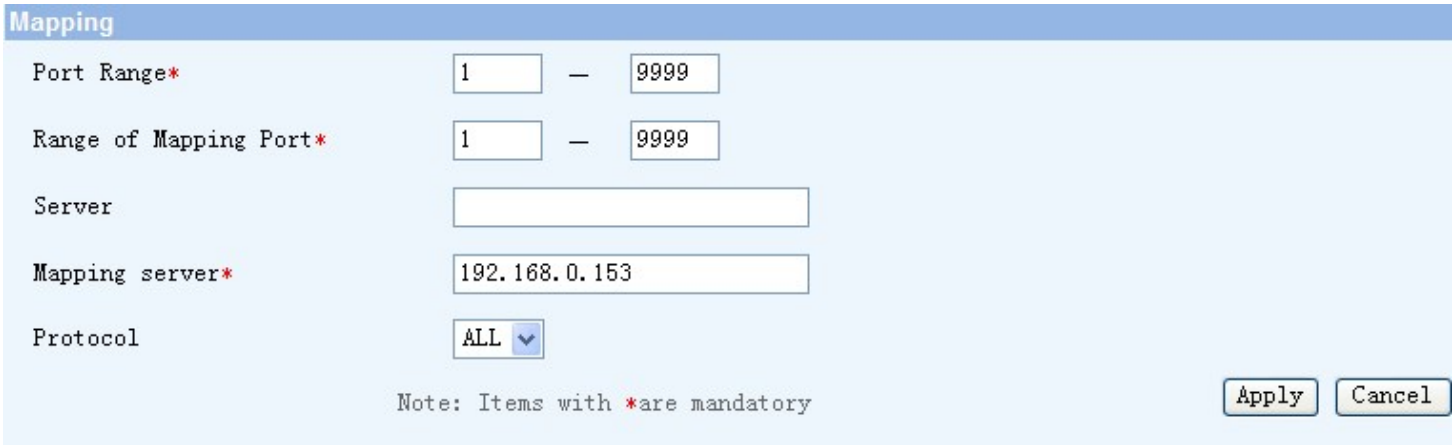
Range of Mapping Port: internal port range (keep the 2nd as blank if just single port) e.g. 10001-10005
Server: If your sim card of the router get a fix public IP, you can input the public IP here. If your sim card of the router gets a dynamic public IP, please DO NOT input.
Mapping server: the device IP of internal network e.g. 192.168.0.100

For example, if you get an IP camera. The IP camera web access port is 80. And IP camera local IP from the router is 192.168.0.153, and the router public IP is 114.56.41.1, then the setting is as follows.



Then do not forget to click “Apply Button” to save it. Better suggest re-power on the router.
Then you can try at your IE browser, type http:// 114.56.41.1:10001 to visit the IP camera by remotely.

If you don’t know the port of the IP camera, please set as follows,

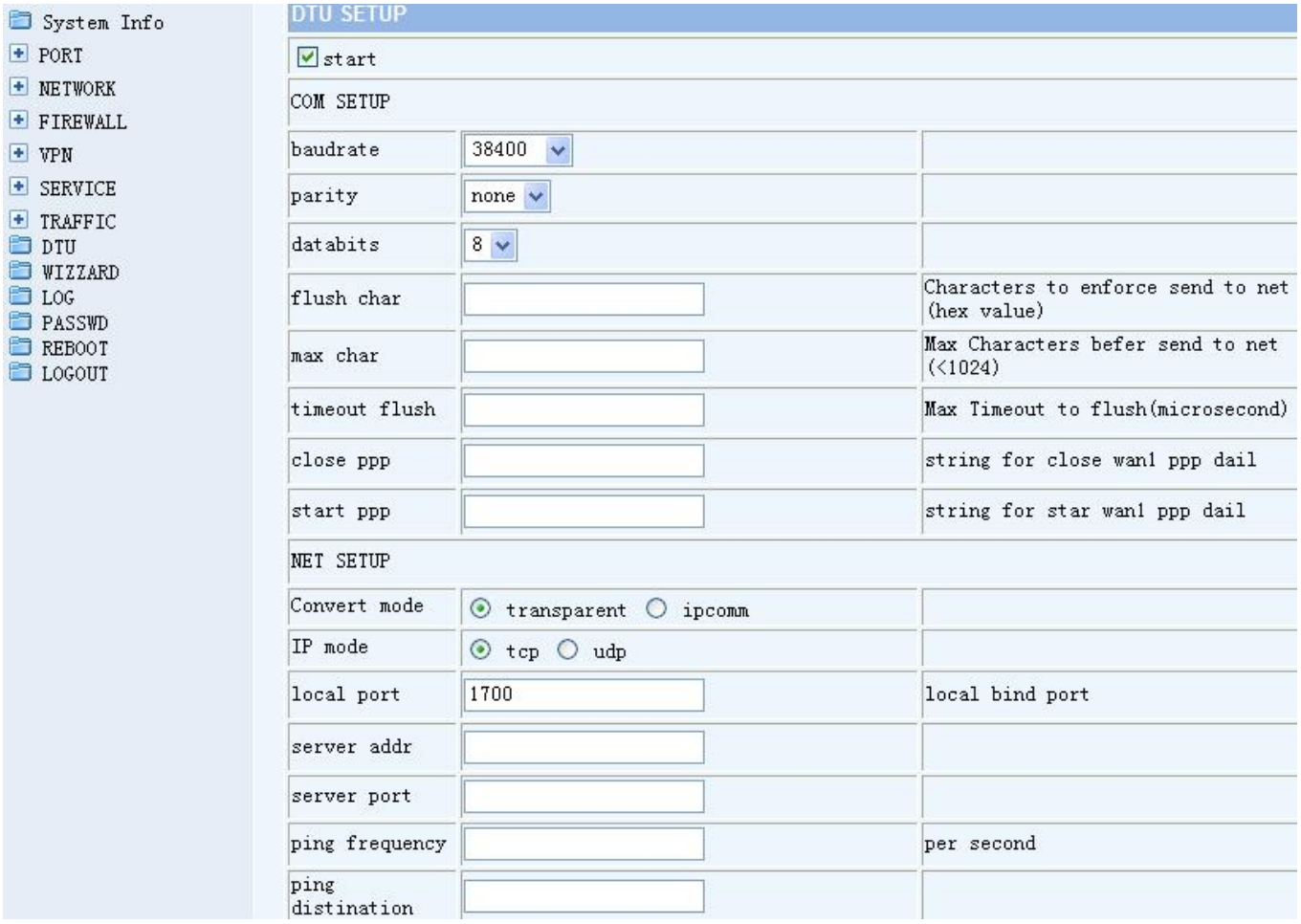


Then do not forget to click “Apply Button” to save it. Better suggest re-power on the router.
Then you can try at your IE browser, type http:// 114.56.41.1:9999 to visit the IP camera by remotely.

Chapter 8

8 DTU Setting

8.1 DTU Setting



Chapter 9

9 Addenda

9.1 Terminology

Internet	**A network of computer networks which operates world-wide using a common set of communications protocols.**
GPRS	**Short for General Packet Radio Service, a standard for Cellular communications which runs at speeds up to 115 kbps**
SIM	**Subscriber Identity Module – a small rectangular piece of plastic with a layer of copper. It is provided as part of a mobile telephone service.**
ISP:	**Internet Service Provider**
DDNS:	**Dynamic Domain Name Server**

9.2 FAQ

- **Recover Router Configuration**

1. Enter the “web” page, choose the “default and reboot” then can recover the default parameters.
2. Hardware recovers: Power off, shortcut between the RS232 point 2 and point 3, product can be recovered the default parameters in 40’s after power on.

- **Factory Default**

1. Default serial port parameters: 115200, 8, N, 1.
2. Default IP & Web port: 192.168.0.254:10000
3. Default user and password in TELNET: guest
4. Default super password in CONSOLE: router

- **Trouble Shooting**

Ethernet work abnormally:

1. Please run “ARP –D” if ping abnormally.
2. Please set up Ethernet interface in 10M, half model if Ethernet connection unstable.

3. Invalid in new IP cause by forgetting save the change in time, please sign in default IP and save the change after enter a new IP.

- **Others**

1) Please check the following items in “status” of the “appear” menu.
2) The character string of the card number is beginning for “898603, it shows the CDMA UIM card had been inserted.
3) The value of the signal strength is between 15-31. It is better more than 20; please connect the local China Unicom for the weak signal less than 15.
4) Confirm owing fee, you can get the information of “Please check data network or your outlay” in terminator. It shows the system can’t build the connection with GPRS/CDMA cause by the weak signal or owing fee.
5) Please check if set in a model of “short connect, invalid detail automatic”.
6) Please download the data of product by using “debug ppp all” command in terminator, then contact with our technocrat.